

EU RO Mutual Recognition Technical Requirements

CABLE TIES	Version	0.4
	Adoption Date	1 January 2023
	Application Date	1 July 2023
	Tier	2
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1. PRODUCT DESCRIPTION

1.a General description of the product

Cable ties are fixing devices for bundling or tying groups of cables together. They may be of metallic, non-metallic or of composite design.

1.b Application limitations

Cable ties are used for bundling or tying groups of cables within the specified environmental conditions. Cable ties may have installation limitations, for instance, where used for cables not laid on top of horizontal cable trays or similar, non-metallic cable ties shall be supplemented by metal clips or straps at no more than 2 m intervals, in order to prevent the release of cable in case of fire. This requirement, however, cannot be checked/ tested during the process of product type approval.

Applicable for all cable ties:

- a) Ambient operation air temperature shall be considered from -25°C to +45°C for cable ties installed on open deck, in dry cargo holds, steering gear compartments, deckhouses, forecastle spaces and similar spaces not provided with space heating;
- b) Cable ties used for fixing of single-core cables shall be dimensioned to withstand short circuit electro-dynamic forces;

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- c) Where cargo gases or vapours are liable to damage the cable ties, careful consideration shall be given to the characteristics of the materials selected;

For non-metallic cable ties:

- d) Cables placed on non-horizontal cable trays or supports, shall have additional fixing by metallic cable clips or saddles at regular distances (e.g. 1 to 2 m) in order to retain the cable during a fire;
- e) Non-UV resistant cable ties shall not be used on open deck. Suitability for permanent use shall be indicated as well as in-door/outdoor application.

1.c Intended use

Cable ties are used for bundling or tying of groups of cables together or securing cables on cable ladders or equivalent supporting structures.

1.d System context

The product shall effectively support electrical cables and secure them to the vessel's structure.

2. DESIGN EVALUATION

2.a Engineering evaluation requirements

2.a i. Technical Requirements

- a) Dependent on the application, the operating temperature shall be - 40°C outside up to +150°C for ties holding silicon rubber cable, if not otherwise specified. Other specification in conjunction with application restrictions shall be documented;
- b) Loop tensile strength min.130N for ties up to 200mm length, 360N for ties longer than 200mm. Loop tensile strength shall be given in certificate as declared and tested by manufacturer, IEC 62275 6.2;

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- c) Cable ties shall be robust and shall have a sufficient surface area and shape so that cables could remain tight without their coverings or sheathing being damaged. Type of connection between ends of cable tie shall prevent a cable tie from becoming loose;
- d) Cable ties shall be made of corrosion resistant material or suitably corrosion inhibited before erection;
- e) Cable ties shall be made of flame retardant material;
- f) Type 2 requirements as per IEC 62275:2006 chapter 6.2.2 are applicable. Requirements of EN 50146 may be applicable instead of IEC 62275 where more stringent and appropriate.

2.a.ii. Technical documents to be submitted

IMPORTANT: The English Language shall be used for all submitted documents.

- a) Data sheet: Details of data sheet need be specified, such as, construction, materials, size and information listed in IEC62275 sub-clause 7.3 , loop tensile strength, max / min operation and installation temperatures, fire integrity properties, UV-resistance etc.;
- b) Records of tests shall be carried out by accredited laboratories.

2.b Type testing requirements

- a) Detailed requirements of the type test shall be in accordance with IEC62275: 2006 "Cable management systems-cable ties for electrical installations";
- b) After the review of technical documentation (with details of type of connection between ends of a cable tie) the EU RO may decide if a vibration test acc. to UR E10 shall be additionally carried out. This test shall be carried out after tying a group of cables;
- c) Non-metallic cable ties shall be flame retardant in accordance with IEC 60092-101 or an alternative and relevant National or International Standard; An additional flammability test shall be carried out as stated in IACS UR E10 with reference to IEC 60695-11-5 with an exposure time of 30 seconds even if the sample has separated from the mandrel during the test;

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- d) A vibration test according to IACS UR E10 shall be carried out;
- e) For non-metallic cable ties resistance against hydraulic fluids, seawater, UV radiation and fire extinguishing media and solvents shall be proven. The test method shall be specified;
- f) Additional tests, such as coating adhesive test for metal cable tie, which deemed necessary by the EU RO may be required.
- g) Increase of weight shall not be more than 3% at 20°C +/- 2°C after tests;
- h) Test specimens shall be taken from the production line or from stocks†.
- i) Tests shall be carried out in Laboratories recognized by the EU RO or in the presence of the EU RO Surveyor. In cases where the tests are conducted at Nationally Accredited Laboratories, the presence of the EU RO surveyor may be omitted†.

† For further clarification of witnessing of tests and sampling the test specimen(s), refer to paragraphs 6, 7 and 8 of the EU RO "Design Evaluation Scheme" procedure (Appendix V of EU RO Framework Document for the Mutual Recognition of Type Approval found on

<http://www.euromr.org/Guidance%20for%20Mutual%20Recognition>)

2.c Type testing requirement for certificate renewal

The manufacturer is to notify the RO of any modification or changes to the manufacturing specifications that may affect the MR TA to be renewed.

3. PRODUCTION REQUIREMENTS

3.a General requirements

Refer to EU RO "Product Quality Assurance (PQA)" procedure (Appendix VI of EU RO Framework Document for the Mutual Recognition of Type Approval).

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4. MARKING REQUIREMENTS

Manufacturers of the approved equipment are, in principle, to mark the product before shipment for identification of approved equipment as per referenced standard. In addition, and as a minimum, the following items to be marked at the suitable place:

- a) Manufacturers name or trademark;
- b) An identification marking detailing type and size.

If this is not possible due to the small size of the cable tie, the packaging shall be marked with the required information. All markings shall be legible and durable.

5. TYPE APPROVAL CERTIFICATE CONTENT

The EU RO MR Type Approval Certificate shall contain the minimum information as defined in the "EU RO Framework Document for the Mutual Recognition of Type Approval" - see Appendix I EU RO MR Type Approval Certificate Information.

The following information is specifically applicable to products relevant to this technical requirement and shall be included on the relevant EU RO MR Type Approval Certificate:

- a) Range/restrictions of application;
- b) Marking of product;
- c) Remarks.

6. APPROVAL DATE AND REVISION NUMBER

Date	Revision	Comment
2013-04-30	0.0	Accepted by Advisory Board
2014-01-31	0.1	CRF008 - Reference to EU RO Framework Document for the Mutual Recognition of Type Approval added.
2015-01-31	0.2	CRF018 – Revision to par. 2.a.ii - Test results to be in English; CRF020 – Revision to par. 5 - 'Type Approval Certificate Content'.

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1 April 2016	0.3	CRF025 – Updated to new MR TR document format incl. par. 8; CRF026/026a – Witness testing & control of test specimen; CRF028 – addition of 6 month application clause.
1 January 2023	0.4	Inserted para 2.c. Inserted para 9. Copyright (ref 21030_)

7. BACKGROUND INFORMATION / REFERENCES

- a) IEC 62275 6.2;
- b) IEC 62275:2006 chapter 6.2.2;
- c) EN 50146;
- d) IEC 60092-101;
- e) IACS UR E10;
- f) IEC 60695-11-5;
- g) EU RO Framework Document for the Mutual Recognition of Type Approval.

Contribution to fire tests' as per IEC 62275 is limited to 30 seconds, but will be stopped if the cable tie breaks as is likely to occur in the case of smaller sized ties. The purpose of the additional flammability test required by IACS UR E10 (see 2.b above) shall test if the material of the ties is flammable.

8. MAINTENANCE / CLARIFICATION OF TECHNICAL REQUIREMENTS

Anyone wishing to propose changes to this document or request clarification of technical issues should contact the EU RO MR Group Secretariat in the first instance: Secretariat@euromr.org.

Review and approval of change requests shall follow the EU RO MR Maintenance Process detailed in the EU RO Framework Document for the Mutual Recognition of Type Approval: <http://www.euromr.org/Guidance%20for%20Mutual%20Recognition>.

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9. LEGAL PROVISIONS / COPYRIGHT

- a) Underlying legal provisions in accordance with EU RO Framework Document for the Mutual Recognition of Type Approval;
- b) Copyright © 2022. All EU RO MR Group rights reserved. For a list of EU RO MR Group members please see <https://www.euomr.org/about-us>. (The year is either the year of the inclusion of the copyright notice, 2022 for existing TRS, or the year of the adoption of any new TR.)

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